(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 772 430 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
10.02.2021 Bulletin 2021/06

(51) Int Cl.:
B60N 2/30 *(2006.01)* ***B60N 3/00*** *(2006.01)*

(21) Application number: **20187150.6**

(22) Date of filing: **22.07.2020**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **09.08.2019 GB 201911396**

(71) Applicant: **Ford Global Technologies, LLC**
Dearborn, MI 48126 (US)

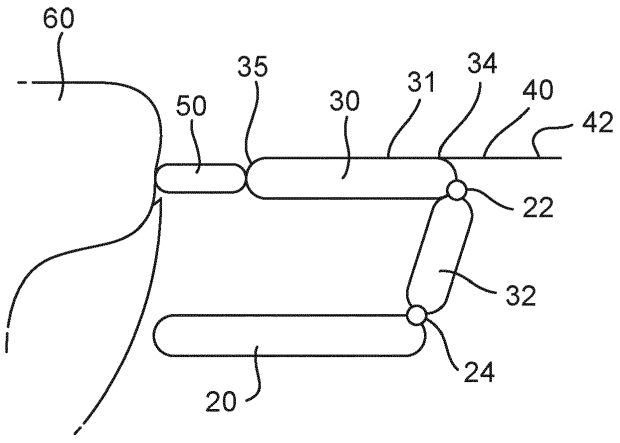
(72) Inventors:
- **JACKSON, Daniel T.**
  Basildon, Essex SS15 4EN (GB)
- **NEUGEBAUER, James**
  Chelmsford, Essex CM2 8NH (GB)
- **WRIGHT, Ian, Sutherland**
  Chelmsford, Essex CM1 2PR (GB)
- **MURRAY, James, Nicholas**
  Chelmsford, Essex CM1 2NX (GB)

(74) Representative: **Haseltine Lake Kempner LLP**
138 Cheapside
London EC2V 6BJ (GB)

(54) **A SEAT FOR A VEHICLE**

(57) A seat for a vehicle (such as a motor vehicle), the seat comprising:
a seat base portion;
a seat back portion rotatable with respect to the seat base portion between a first position, in which the seat back portion is substantially upright, and a second position, in which a back surface of the seat back portion is substantially horizontal, and
a projecting portion extending from an edge of the seat back portion that is at a lower end of the seat back portion when in the first position, the projecting portion having a surface that is contiguous with the back surface of the seat back portion, wherein the projecting portion is configured to rotate with the seat back portion such that in the second position the projecting portion extends rearwards of the seat base portion and the back surface of the seat back portion and the surface of the projecting portion together form a table surface.

Fig. 1b



EP 3 772 430 A1

Description

Technical Field

[0001] This disclosure relates generally to a seat for a vehicle and particularly, although not exclusively, relates to a seat back with a protruding portion that protrudes below a pivot point of the seat and provides a table surface when the seat back is rotated.

Background

[0002] Utility vehicles have to perform various functions, one of which is as a mobile office. However, the interior of utility vehicles is often not suitable for carrying out paperwork.

Statements of Invention

[0003] According to an aspect of the present disclosure, there is provided a seat for a vehicle (such as a motor vehicle), the seat comprising:

a seat base portion;
a seat back portion rotatable with respect to the seat base portion between a first position, in which the seat back portion is substantially upright, and a second position, in which a back surface of the seat back portion is substantially horizontal, and
a projecting portion extending from an edge of the seat back portion that is at a lower end of the seat back portion when in the first position, the projecting portion having a surface that is contiguous with the back surface of the seat back portion, wherein the projecting portion is configured to rotate with the seat back portion such that in the second position the projecting portion extends rearwards of the seat base portion and the back surface of the seat back portion and the surface of the projecting portion together form a table surface.

[0004] The seat back portion may rotate about a pivot point of the seat. When the seat back portion is in the first position, the back surface of the seat back portion may be above the pivot point and the projecting portion may be below the pivot point.

[0005] The projecting portion may be rigidly fixed to the seat back portion. Alternatively, the projecting portion may be moveable with respect to the seat back portion, for example, the projecting portion may be retractable into the seat back portion.

[0006] The seat back portion may be rotatably coupled to the seat base portion, e.g. at the pivot point of the seat.

[0007] The seat may further comprise an intermediate seat back portion provided between the seat back portion and the seat base portion. The seat back portion may be rotatably coupled to the intermediate seat back portion, e.g. at the pivot point of the seat. The intermediate seat back portion may be rotatably coupled to the seat base portion. For example, the intermediate seat back portion and seat back portion may together rotate with respect to the seat base portion.

[0008] The seat may further comprise at least one selectively extending portion. The extending portion may be configured to further extend the table surface. The or each extending portion may selectively extend from the projecting portion. For example, the or each extending portion may unfold with respect to the projecting portion.

[0009] The seat may comprise a pair of extending portions that extend from the projecting portion. The pair of extending portions may extend from respective lateral edges of the projecting portion. For example, the pair of extending portions may rotate about respective lateral edges of the projecting portion and may unfold with respect to the projecting portion.

[0010] The seat may further comprise a headrest portion. The headrest portion may be configured to engage a dashboard structure of the vehicle when the seat is in the second position.

[0011] According to another aspect of the present disclosure there is provided a vehicle comprising the aforementioned seat.

[0012] The vehicle may further comprise at least one further seat. The further seat may be provided adjacent to the seat. The extending portion when deployed may extend behind the further seat.

[0013] The vehicle may further comprise the dashboard structure. The dashboard structure may be configured to receive the headrest portion and hold the seat back portion in place when in the second position.

[0014] The vehicle may further comprise a rear seat provided rearwards of the seat. The table surface may be provided for an occupant of the rear seat.

[0015] To avoid unnecessary duplication of effort and repetition of text in the specification, certain features are described in relation to only one or several aspects or embodiments of the invention. However, it is to be understood that, where it is technically possible, features described in relation to any aspect or embodiment of the invention may also be used with any other aspect or embodiment of the invention.

Brief Description of the Drawings

[0016] For a better understanding of the present invention, and to show more clearly how it may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:

Figures 1a and 1b (collectively Figure 1) are schematic side views of a seat for a vehicle according to an example of the present disclosure with Figure 1a showing a seat back in a first position and Figure 1b showing the seat back in a second position; and

Figures 2a and 2b (collectively Figure 2) are sche-

matic top views of a seating arrangement for a vehicle according to an example of the present disclosure with Figure 2a showing a seat back of one of the seats in the first position and Figure 2b showing the seat back in the second position.

Detailed Description

[0017] With reference to Figure 1, the present disclosure relates to a seat 10 for a vehicle 100, such as a motor vehicle. The seat 10 comprises a seat base portion 20 and a seat back portion 30. The seat back portion 30 is rotatable with respect to the seat base portion 20. In particular, the seat back portion 30 is rotatable between a first position, in which the seat back portion is substantially upright (depicted in Figure 1a), and a second position, in which a back surface 31 of the seat back portion is substantially horizontal (depicted in Figure 1b). As shown, the seat back portion 30 may be rotatably coupled to the seat base portion 20 at a pivot point 22.

[0018] The seat 10 may further comprise an intermediate seat back portion 32 provided between the seat back portion 30 and the seat base portion 20. The intermediate seat back portion 32 and the seat back portion 30 may together form a seat back of the seat 10. The seat back portion 30 may be rotatably coupled to the intermediate seat back portion 32, e.g. at the pivot point 22. The intermediate seat back portion 32 may also be rotatably coupled to the seat base portion 20 about a further pivot point 24. For example, the intermediate seat back portion 32 and seat back portion 30 may together rotate with respect to the seat base portion 20, e.g. to allow adjustment of the seat back recline angle. In another arrangement (not shown), the intermediate seat back portion 32 may be omitted and the seat back portion 30 may directly couple to the seat base portion 20.

[0019] The seat 10 further comprises a projecting portion 40. The projecting portion 40 extends from a lower edge 34 of the seat back portion 30. The lower edge 34 is at a lower end of the seat back portion 30 when it is in the first position. The projecting portion 40 is configured to rotate with the seat back portion 30 about pivot point 22. When the seat back portion 30 is in the first position, the back surface 31 of the seat back portion may be above the pivot point 22 and the projecting portion 40 may be below the pivot point 22. By contrast, when the seat back portion 30 is in the second position, the back surface 31 of the seat back portion and the projecting portion 40 may be either side of the pivot point 22 with the projecting portion 40 extending rearwards of the seat base portion 30.

[0020] The projecting portion 40 has a surface 42 that is contiguous with the back surface 31 of the seat back portion 30. The projecting portion surface 42 is continuous with the back surface 31. In particular, the projecting portion surface 42 and the back surface 31 may be substantially flat and may lie in substantially the same plane. The back surface 31 of the seat back portion and the surface 42 of the projecting portion 40 together form a table surface when the seat back portion 30 is in the second position.

[0021] In the depicted arrangement, the projecting portion 40 is rigidly fixed to the seat back portion 30. However, in another arrangement (not shown), the projecting portion 40 may be moveable with respect to the seat back portion 30. For example, the projecting portion 40 may be retractable into the seat back portion 30. In particular, the projecting portion 40 may retract into the seat back portion 30 when the seat back portion 30 is in the first position and the projecting portion 40 may extend from the seat back portion 30 when the seat back portion 30 is in the second position.

[0022] With reference to Figure 1b, the seat 10 may further comprise a headrest portion 50 extending from an upper edge 35 of the seat back portion 30. The headrest portion 50 may engage a dashboard structure 60 of the vehicle when the seat back portion 30 is in the second position. The dashboard structure 60 may be configured to receive the headrest portion 50 and hold the seat back portion 30 in place when it is in the second position. For example, the dashboard structure may comprise a recess or receiving section that receives the headrest portion 50. An interaction with the dashboard structure 60 may resist further rotation of the seat back portion 30 and may help provide a stable table surface.

[0023] With reference to Figure 2, the seat 10 may be provided in the vehicle 100 as part of a row of seats. In the particular arrangement shown, the seat 10 may be a middle seat 10b in a row of three seats 10a, 10b, 10c. However, it is also envisaged that the seat 10 may be provided in a row of one or more seats.

[0024] The vehicle 100 may further comprise one or more rear seats provided behind the seat 10. In the particular arrangement shown, a row of three rear seats 70a, 70b, 70c are provided behind the seat 10. However, it is also envisaged that one or more rear seats may be provided behind seat 10.

[0025] The table surface provided by the seat 10 when the seat back portion 30 is in the second position may be used by an occupant of one of the rear seats 70a, 70b, 70c and/or an occupant of one of the front seats 10a, 10c.

[0026] The vehicle 100 may comprise the dashboard structure 60. As shown in Figure 2b, the headrest portion of seat 10 may engage (e.g. rest on) the dashboard structure 60 when the seat back portion 30 is in the second position. A locking mechanism (not shown) may be provided to secure the seat back portion 30 in the second position.

[0027] As depicted in Figure 2b, the seat 10 may comprise a pair of extending portions 80a, 80b that selectively extend from the projecting portion 40. The pair of extending portions 80a, 80b may extend from respective opposite lateral edges 43, 44 of the projecting portion 40. For example, the pair of extending portions 80a, 80b may rotate about the respective lateral edges 43, 44 of the

projecting portion 40 and may unfold with respect to the projecting portion. The extending portions 80a, 80b when deployed may extend behind the other front row seats 10a, 10c.

[0028] The extending portions 80a, 80b may fold back onto the projecting portion 40 and may or may not overlap when folded back. A locking mechanism (not shown) may hold the extending portions 80a, 80b in place when extended and/or stowed. The extending portions 80a, 80b and protruding portion 40 may together rotate with the seat back portion 30, e.g. when returning to or moving away from the first position depicted in Figures 1a and 2a.

[0029] In other arrangements (not shown), one or more extending portions may be provided. Furthermore, the extending portion(s) may retract, e.g. slide, relative to the protruding portion 40.

[0030] The seat 10 of the present disclosure advantageously provides a large table surface for an occupant of the vehicle 100 to use. This may be particularly beneficial when the vehicle is being used as a mobile office.

[0031] The following numbered statements form part of the present disclosure:

Statement 1. A seat for a vehicle, the seat comprising:

a seat base portion;
a seat back portion rotatable with respect to the seat base portion between a first position, in which the seat back portion is substantially upright, and a second position, in which a back surface of the seat back portion is substantially horizontal, and
a projecting portion extending from an edge of the seat back portion that is at a lower end of the seat back portion when in the first position, the projecting portion having a surface that is contiguous with the back surface of the seat back portion, wherein the projecting portion is configured to rotate with the seat back portion such that in the second position the projecting portion extends rearwards of the seat base portion and the back surface of the seat back portion and the surface of the projecting portion together form a table surface.

Statement 2. The seat of statement 1, wherein the seat back portion rotates about a pivot point of the seat and when the seat back portion is in the first position, the back surface of the seat back portion is above the pivot point and the projecting portion is below the pivot point.

Statement 3. The seat of statement 1 or 2, wherein the projecting portion is rigidly fixed to the seat back portion.

Statement 4. The seat of statement 1 or 2, wherein the projecting portion is retractable into the seat back portion.

Statement 5. The seat of any of the preceding statements, wherein the seat back portion is rotatably coupled to the seat base portion.

Statement 6. The seat of any of statements 1 to 4, wherein the seat further comprises an intermediate seat back portion provided between the seat back portion and the seat base portion.

Statement 7. The seat of statement 6, wherein the seat back portion is rotatably coupled to the intermediate seat back portion.

Statement 8. The seat of statement 6 or 7, wherein the intermediate seat back portion is rotatably coupled to the seat base portion.

Statement 9. The seat of any of the preceding statements, wherein the seat further comprises at least one selectively extending portion, the extending portion being configured to further extend the table surface.

Statement 10. The seat of statement 9, wherein the or each extending portion selectively extends from the projecting portion.

Statement 11. The seat of statement 9 or 10, wherein the or each extending portion unfolds with respect to the projecting portion.

Statement 12. The seat of any of statements 9 to 11, wherein the seat comprises a pair of extending portions that extend from the projecting portion.

Statement 13. The seat of statement 12, wherein the pair of extending portions extend from respective lateral edges of the projecting portion.

Statement 14. The seat of statement 13, wherein the pair of extending portions rotate about respective lateral edges of the projecting portion and unfold with respect to the projecting portion.

Statement 15. The seat of any of the preceding statements, wherein the seat further comprises a headrest portion, the headrest portion being configured to engage a dashboard structure of the vehicle when the seat is in the second position.

Statement 16. A vehicle comprising the seat of any of the preceding statements.

Statement 17. The vehicle of statement 16, wherein the vehicle further comprises at least one further

seat, the further seat being provided adjacent to the seat.

Statement 18. The vehicle of statement 17 when dependent on statement 9, wherein the extending portion when deployed extends behind the further seat.

Statement 19. The vehicle of any of statements 16 to 18 when dependent on statement 15, wherein the vehicle further comprises the dashboard structure and the dashboard is configured to receive the headrest portion and hold the seat back portion in place when in the second position.

Statement 20. The vehicle of any of statements 16 to 19, wherein the vehicle further comprises a rear seat provided rearwards of the seat, the table surface being provided for an occupant of the rear seat.

[0032] It will be appreciated by those skilled in the art that although the invention has been described by way of example, with reference to one or more examples, it is not limited to the disclosed examples and alternative examples may be constructed without departing from the scope of the invention as defined by the appended claims.

Claims

1. A seat for a vehicle, the seat comprising:

a seat base portion;
a seat back portion rotatable with respect to the seat base portion between a first position, in which the seat back portion is substantially upright, and a second position, in which a back surface of the seat back portion is substantially horizontal, and
a projecting portion extending from an edge of the seat back portion that is at a lower end of the seat back portion when in the first position, the projecting portion having a surface that is contiguous with the back surface of the seat back portion, wherein the projecting portion is configured to rotate with the seat back portion such that in the second position the projecting portion extends rearwards of the seat base portion and the back surface of the seat back portion and the surface of the projecting portion together form a table surface.

2. The seat of claim 1, wherein the seat back portion rotates about a pivot point of the seat and when the seat back portion is in the first position, the back surface of the seat back portion is above the pivot point and the projecting portion is below the pivot point.

3. The seat of claim 1 or 2, wherein the projecting portion is rigidly fixed to the seat back portion or the projecting portion is retractable into the seat back portion.

4. The seat of any of the preceding claims, wherein the seat back portion is rotatably coupled to the seat base portion.

5. The seat of any of claims 1 to 3, wherein the seat further comprises an intermediate seat back portion provided between the seat back portion and the seat base portion, wherein the seat back portion is rotatably coupled to the intermediate seat back portion, and wherein the intermediate seat back portion is rotatably coupled to the seat base portion.

6. The seat of any of the preceding claims, wherein the seat further comprises at least one selectively extending portion, the extending portion being configured to further extend the table surface.

7. The seat of claim 6, wherein the or each extending portion selectively extends from the projecting portion.

8. The seat of claim 6 or 7, wherein the or each extending portion unfolds with respect to the projecting portion.

9. The seat of any of claims 6 to 8, wherein the seat comprises a pair of extending portions that extend from the projecting portion.

10. The seat of claim 9, wherein the pair of extending portions extend from respective lateral edges of the projecting portion.

11. The seat of claim 10, wherein the pair of extending portions rotate about respective lateral edges of the projecting portion and unfold with respect to the projecting portion.

12. The seat of any of the preceding claims, wherein the seat further comprises a headrest portion, the headrest portion being configured to engage a dashboard structure of the vehicle when the seat is in the second position.

13. A vehicle comprising the seat of any of the preceding claims.

14. The vehicle of claim 13 when dependent on claim 6, wherein the vehicle further comprises at least one further seat, the further seat being provided adjacent to the seat, wherein the extending portion when deployed extends behind the further seat.

15. The vehicle of claim 13 or 14, wherein the vehicle further comprises a rear seat provided rearwards of the seat, the table surface being provided for an occupant of the rear seat.

Fig. 1a

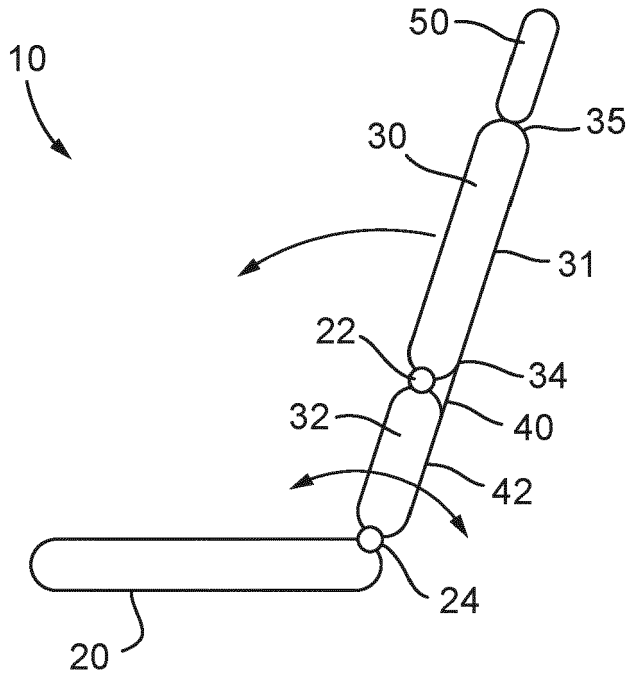


Fig. 1b

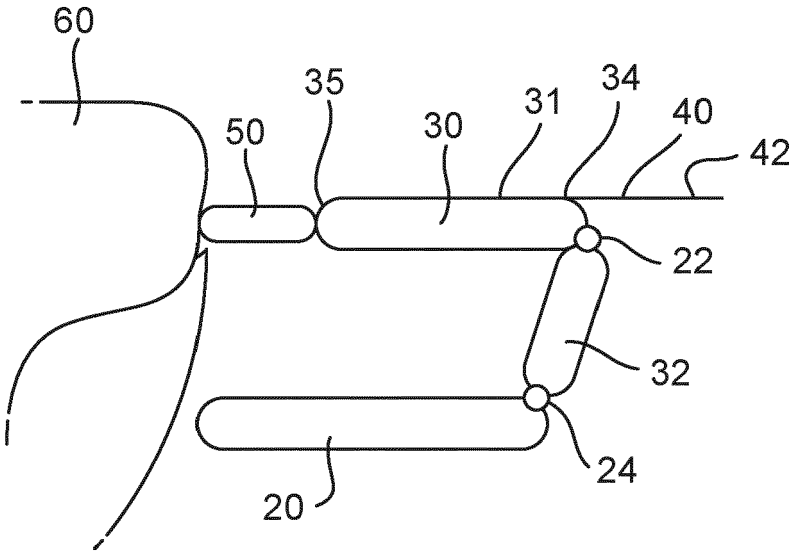


Fig. 2a

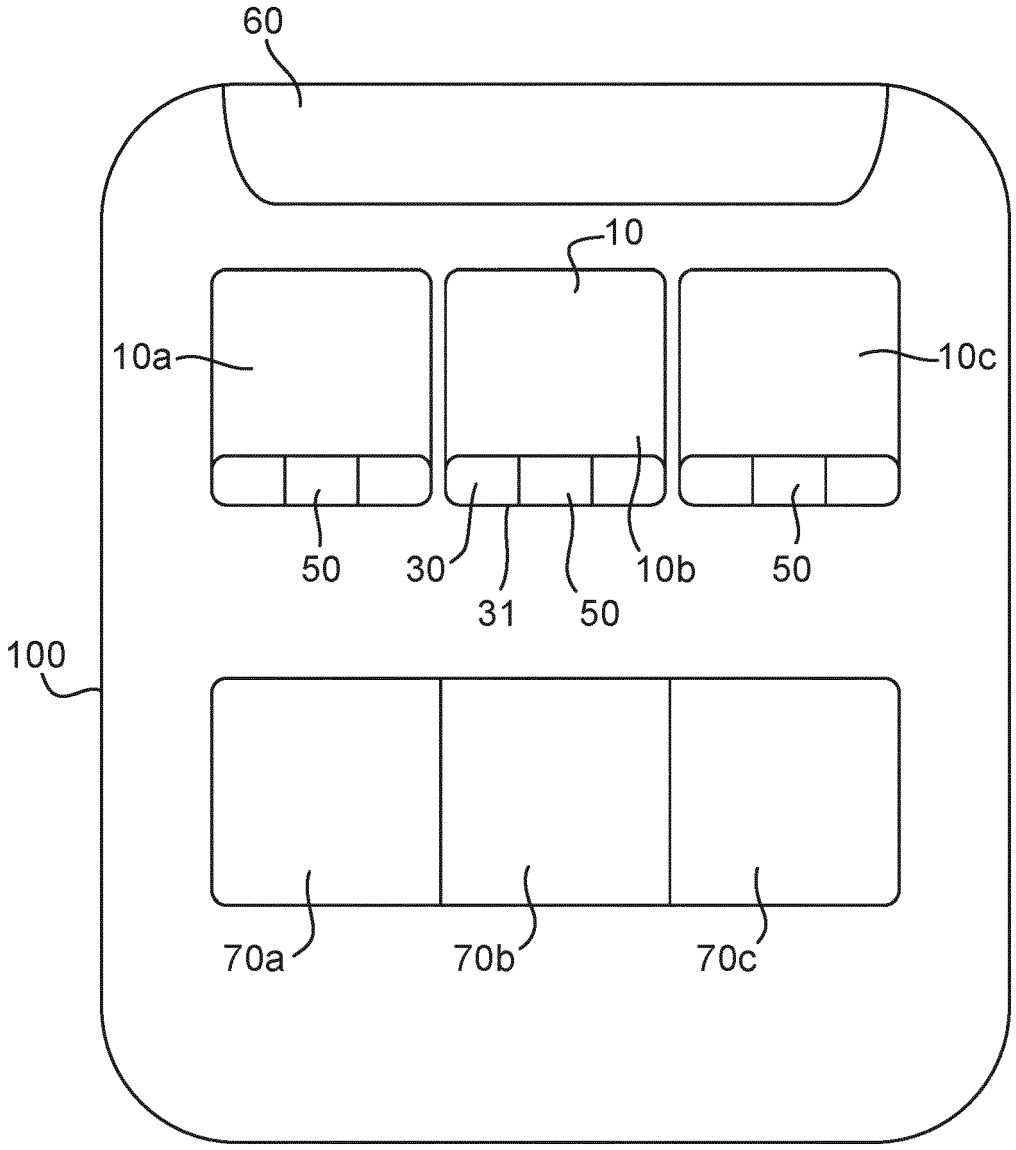
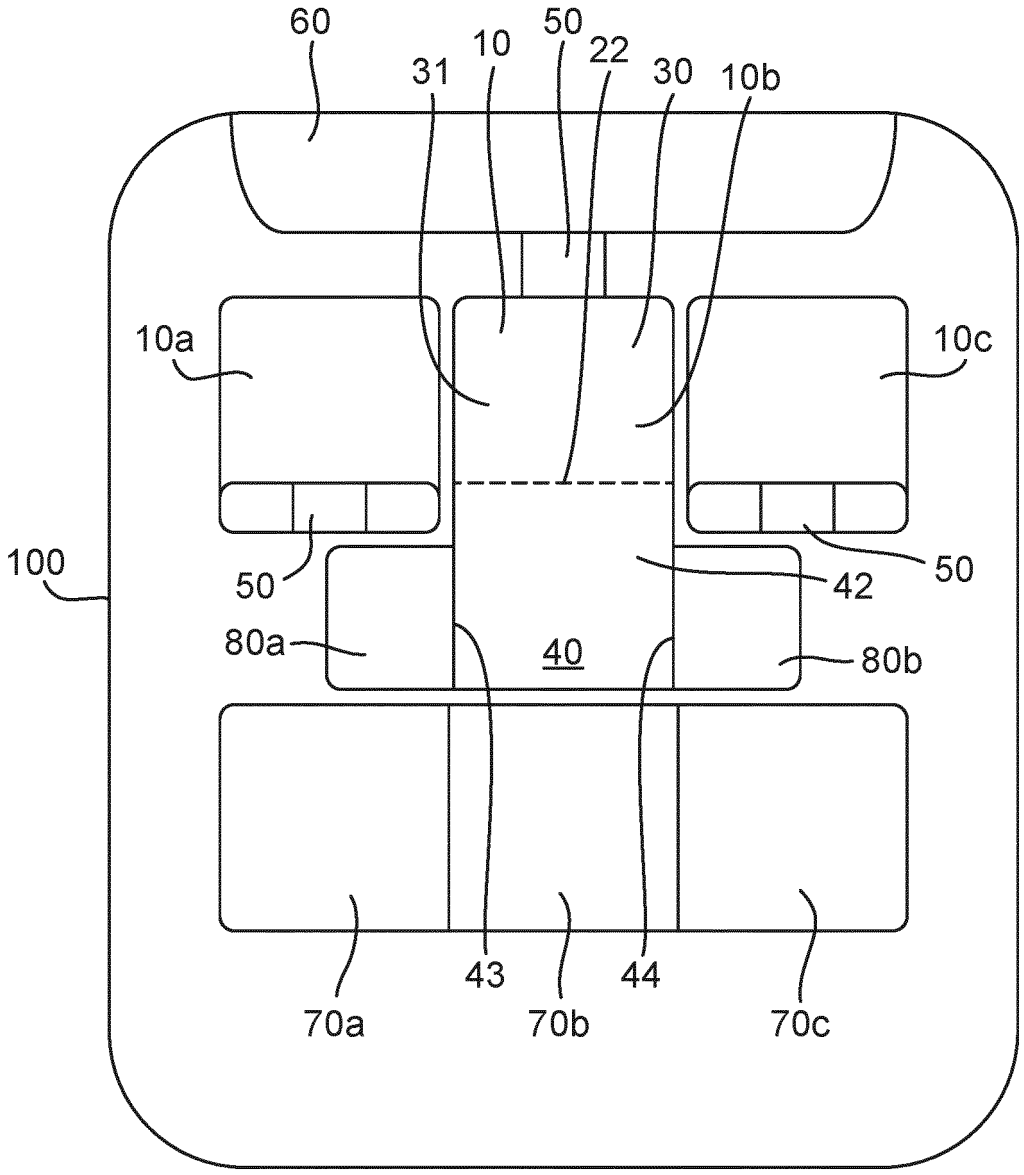


Fig. 2b


60
31
10
50
22
30
10b
10a
10c
100
50
42
50
80a
40
80b
43
44
70a
70b
70c

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 20 18 7150

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	GB 2 395 118 A (FORD GLOBAL TECH LLC [US]) 19 May 2004 (2004-05-19) * abstract * * figures 1-3 *	1-6,13 7-11	INV. B60N2/30 B60N3/00
X	JP H05 221256 A (HANSUUYURUGEN TSUEE) 31 August 1993 (1993-08-31) * abstract * * figures 1,3 *	1-4,12, 13	
X	DE 10 2005 025544 A1 (JOHNSON CONTROLS GMBH [DE]) 7 December 2006 (2006-12-07) * abstract * * figures 2a,2b *	1-4, 13-15	
X	WO 2011/154638 A1 (PEUGEOT CITROEN AUTOMOBILES SA [FR]; BRUCAMP GABRIEL [FR]) 15 December 2011 (2011-12-15) * abstract * * figures 1,2 *	1-4,13	
Y	FR 3 008 935 A1 (PEUGEOT CITROEN AUTOMOBILES SA [FR]) 30 January 2015 (2015-01-30) * abstract * * figure 6 *	7-11	TECHNICAL FIELDS SEARCHED (IPC) B60N

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	2 December 2020	Vachey, Clément

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 20 18 7150

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

02-12-2020

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2395118 A	19-05-2004	NONE	
JP H05221256 A	31-08-1993	DE 9017488 U1	07-03-1991
		EP 0492281 A2	01-07-1992
		JP H05221256 A	31-08-1993
DE 102005025544 A1	07-12-2006	NONE	
WO 2011154638 A1	15-12-2011	FR 2961138 A1	16-12-2011
		WO 2011154638 A1	15-12-2011
FR 3008935 A1	30-01-2015	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82